# ROUTING SLIP

| | MAIL CODE | NAME | ACTION |
|---|---|---|---|
| 1. | USS-10 | Millie Ruda | APPROVAL |
| 2. | | | CALL ME |
| 3. | | | CONCURRENCE |
| 4. | | | FILE |
| 5. | | | INFORMATION |
| 6. | | | INVESTIGATE AND ADVISE |
| 7. | | | NOTE AND FORWARD |
| | | | NOTE AND RETURN |
| | | | PER REQUEST |
| | | | PER TELEPHONE CONVERSATION |
| | | | RECOMMENDATION |
| | | | SEE ME |
| | | | SIGNATURE |

Millie -

Please send to the facility with the following notation:

DO NOT ANNOUNCE AND DO NOT RELEASE BEYOND NASA. AVAILABLE TO NASA ONLY.

Thanks.

Judy

| MAIL CODE | NAME | TEL. NO. | DATE |
|---|---|---|---|
| MA-2 | Mr. T. A. Keegan | 2-0443 | 11/4/67 |

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CR# 90611

BELLCOMM, INC.

SUBJECT: WORKING NOTE - Instrumentation, Command Module Drop Tests - Case 320

DATE: October 23, 1967

FROM: W. C. Brubaker

Mr. P. F. Sennewald:

On September 27, 1967 Command Module BP-28 was drop tested at MSC. This was the first in a series of drops of instrumented Command Modules for resolving the land impact problem. In a review of BP-28 instrumentation with MSC personnel it was suggested that accelerometers located at the forward bulkhead attachment points of the "X" "impact" attenuators would provide valuable data on the input loads to the couch system. This suggestion was favorably received by MSC and they were to consider including the additional accelerometers for future drop tests. There has been continued contact with MSC concerning this instrumentation.

Command Module 008 is tentatively scheduled for a mid November drop. It is anticipated from model tests that the drop condition for CM 008, a 180° roll condition, will be the most severe for the couch system and basic structure. There is speculation that the CM will roll.

A copy of CM 008 test instrumentation has been received from MSC test personnel. When compared to BP-28, CM 008 has 2 additional accelerometers (additional primary structure instrumentation). However, the "impact" attenuator-to-primary structure attachments are not accelerometer instrumented.

There is no confidence (opinion developed in discussions with MSC personnel) that the present couch systems will satisfy all requirements for crew safety. This includes Weber and Unified couches and the "impact attenuators. Future drop tests may dictate a change to the struts or couches. Accelerometers located at the "impact" attenuator-to-primary structure attachment points would provide a capability to reproduce couch/suspension system loads for system analysis or for testing the couch/suspension system as a separate unit.

There will be continuing effort to have this instrumentation incorporated into the test plan.

William C. Brubaker

W. C. Brubaker

2031-WCB-sjh

Copy to
(see next page)

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FROM: W. C. Brubaker

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